Watershed Subcommittee Milestones

- April, 2002 – conceptual plan / timelines
- July, 2002 – first pilot started on SR522
- February, 2003 – SR522 results presented
- July, 2003 – subcommittee focus shifts – second Watershed Characterization started on I-405
- September, 2003 – consultant policy support
- December, 2003 – I-405 Watershed Characterization products

Watershed Subcommittee Progress Report

Today – Overview/Status of:

- Screening tool development/testing
- I-405 North Renton work
- Watershed policy direction

Purpose of Screening Tool

- An internal WSDOT tool to provide transportation project engineers with an **early warning** that a future project has **site-specific conditions** that will **limit their ability** to treat stormwater and mitigate wetland impacts **on-site** in a **cost effective** and **environmentally sensitive manner.**
- Compare Nickel Projects

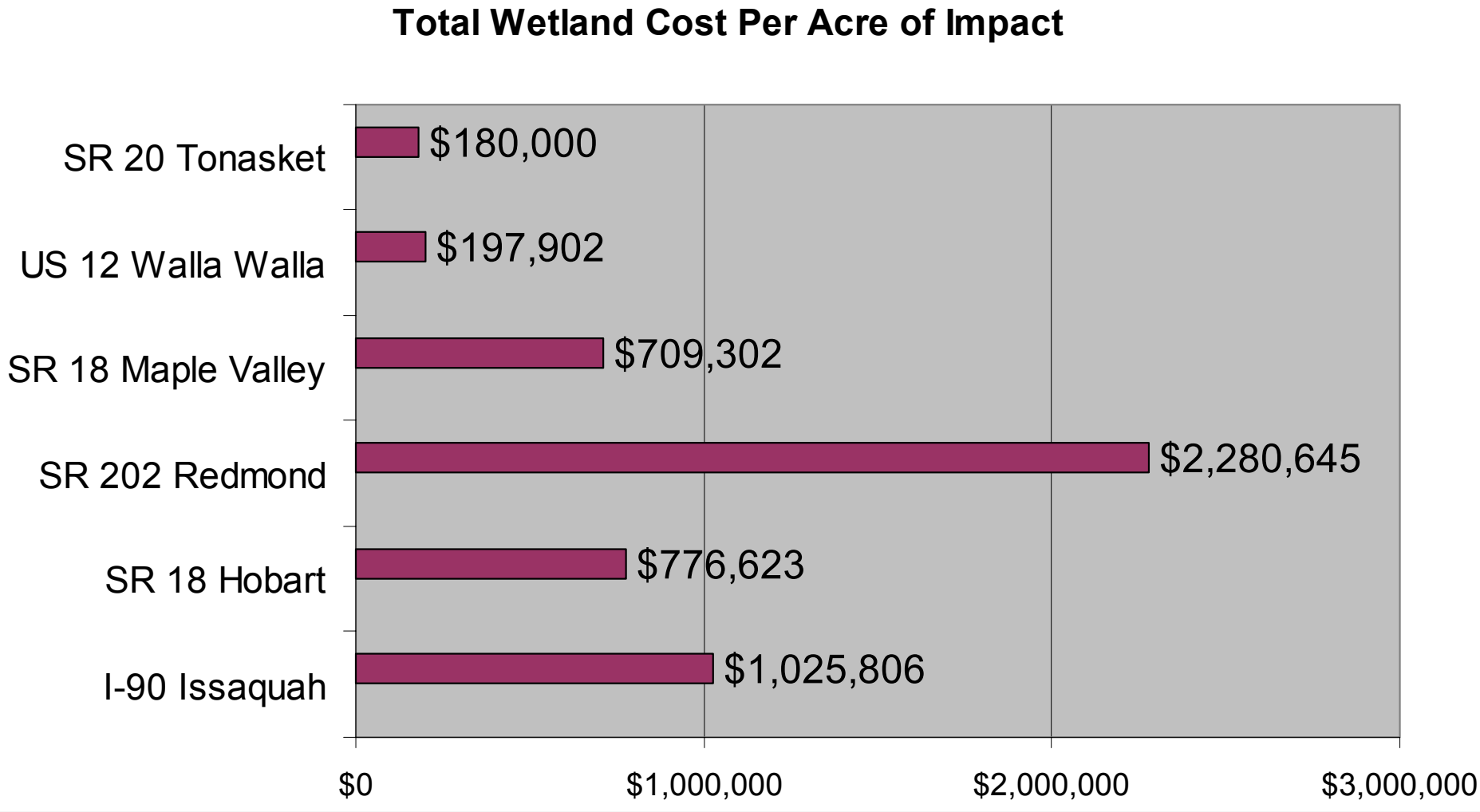
Benefits

- Fewer surprises
- Improved cost management
- Increased environmental benefits

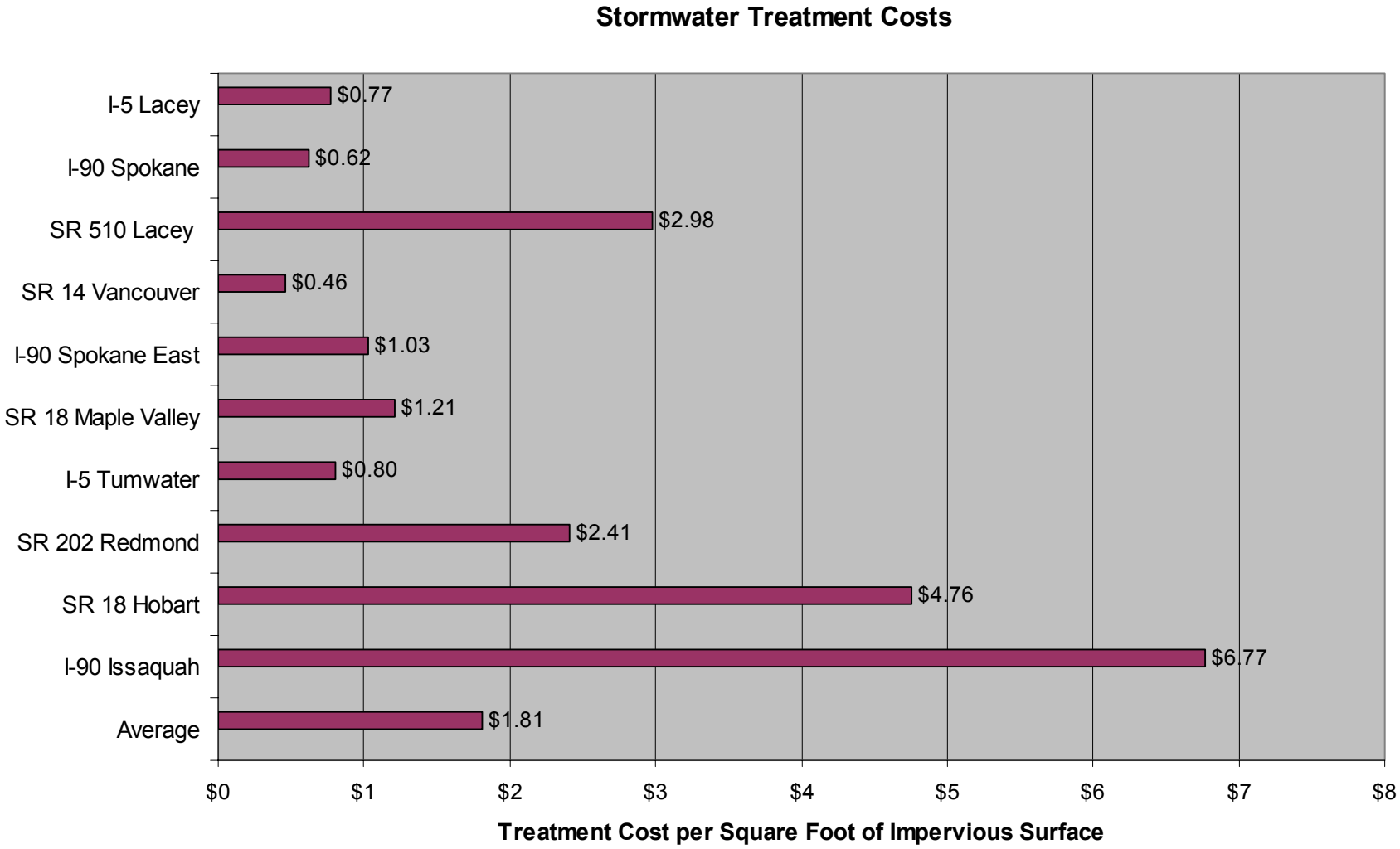
Methods

- Identify what drives up mitigation costs
- Identify key environmental areas
- Develop automated model
- Evaluate/calibrate model to projects with wetland and stormwater cost data
- Assess tool viability
- Run model on Nickel Project list

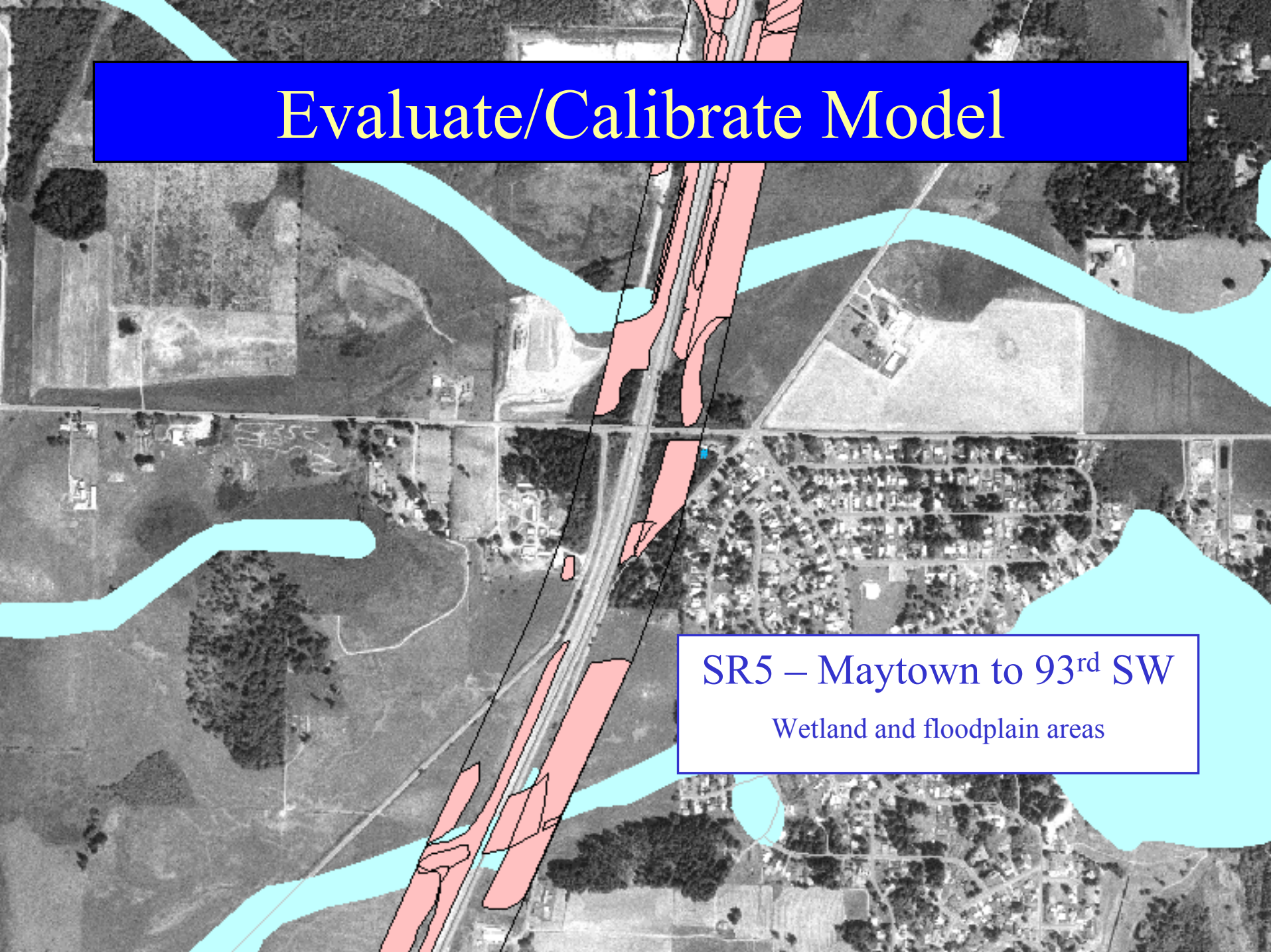
Variation in Wetland Costs



Variation in Stormwater Costs

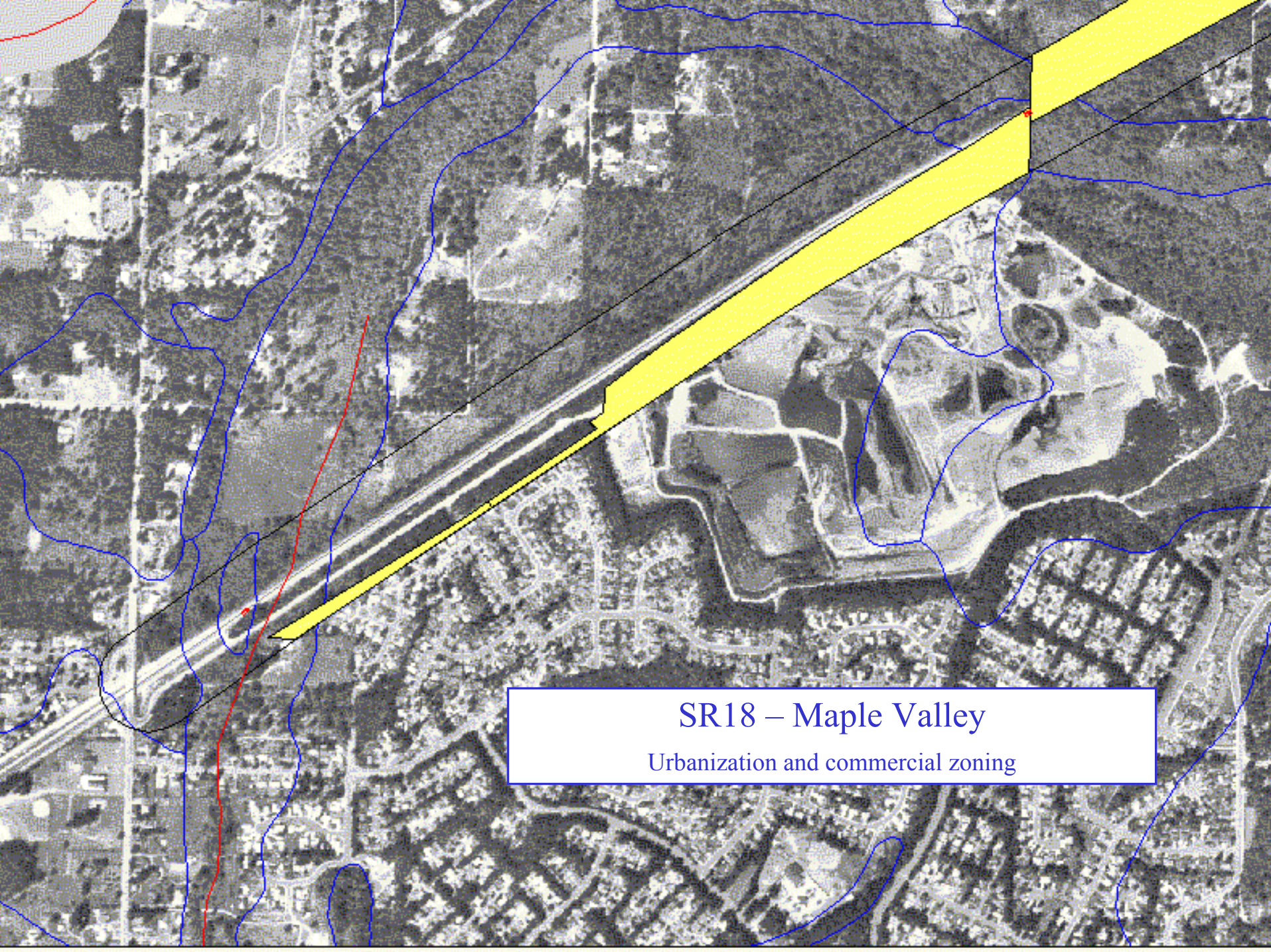


Evaluate/Calibrate Model



SR5 – Maytown to 93rd SW

Wetland and floodplain areas


SR18 – Maple Valley
Urbanization and commercial zoning

Key Messages

- The screening tool is showing promise
- Still in the development and testing stages
- Results have greatest value when provided early in the planning process
- Results can help direct watershed characterization to projects with greatest cost and resource need
- Project completion expected – May 31, 2004

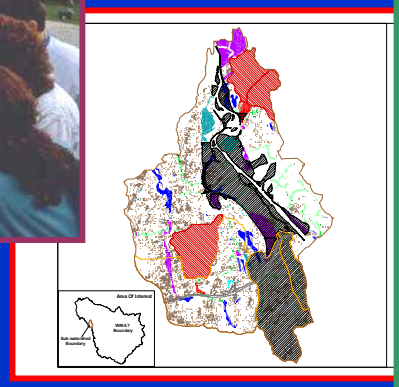
Purpose of Watershed Characterization

- Develop **technical methods** for watershed-based mitigation of transportation impacts that **increase environmental benefits** and **reduce project cost**
- Apply to **large projects** with **complex environmental impacts, early in the planning process**

Benefits of Watershed Characterization

- **New information** to support **improved avoidance/minimization** of existing resources
- **New options** for natural resource mitigation and stormwater treatment that mitigate project impacts and provide **greater environmental benefit**
- **Reduced mitigation cost for taxpayers**

Mitigation Tools Available



Drive-by

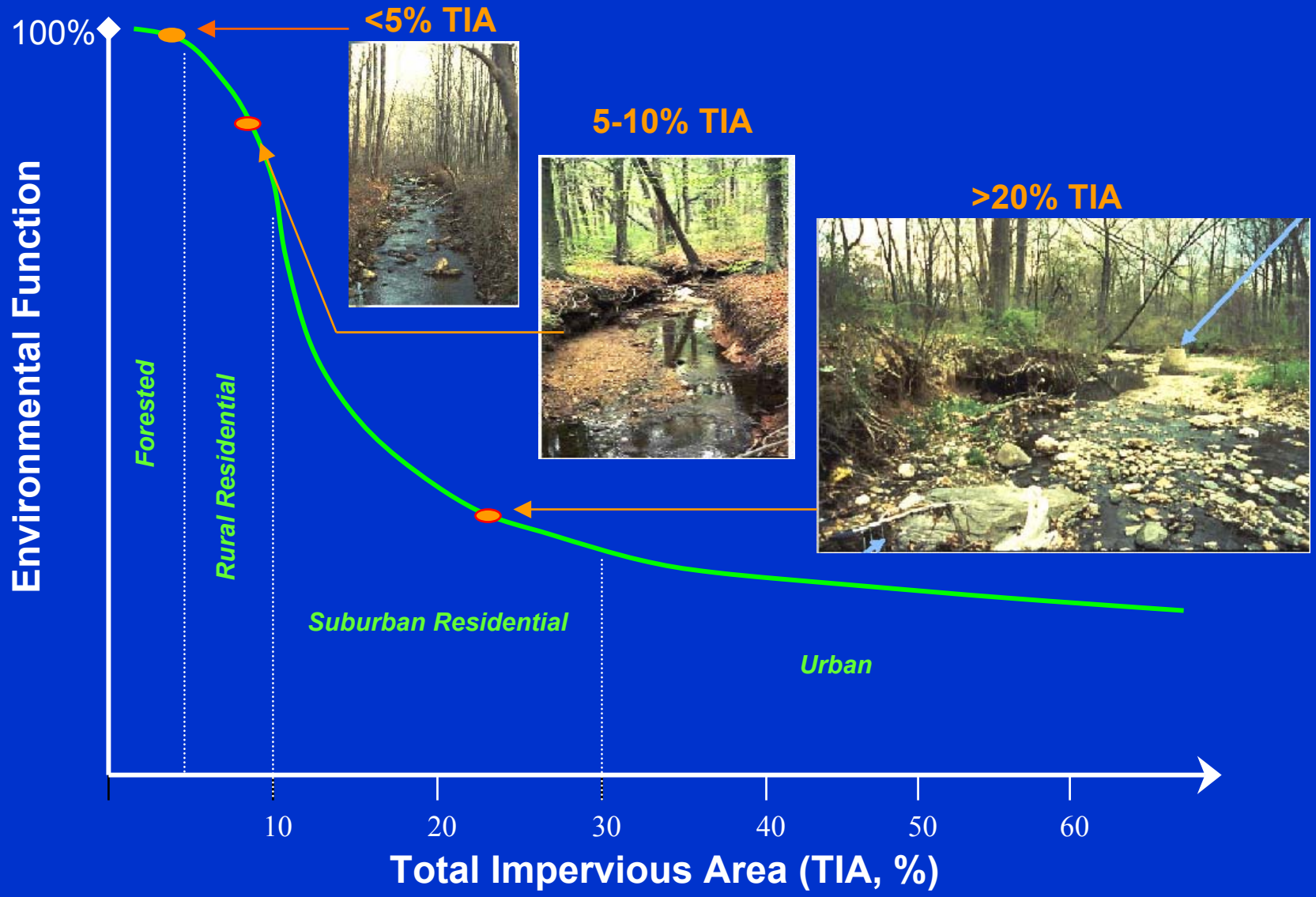
Walk-Through

Ask Watershed Groups

GIS Overlays

Sophisticated Models

Target mitigation where it's most effective



Target mitigation for maximum benefits

Target landscape- not artificial-storage and treatment

Engineered Flow Control

Example, stormwater detention pond

No benefits beyond water quality/quantity

Restoring Natural Control

Example: wetlands restoration

Many benefits beyond just water quality/quantity

Stormwater Flow Control Focus

- **Long-term goal** - Work to make wetland restoration a stormwater flow control Best Management Practice (BMP) along with vaults and detention ponds
- Project engineers rely on BMPs to treat stormwater (vaults/ponds)
- Substantial potential exists to use natural resource restoration to provide stormwater flow control

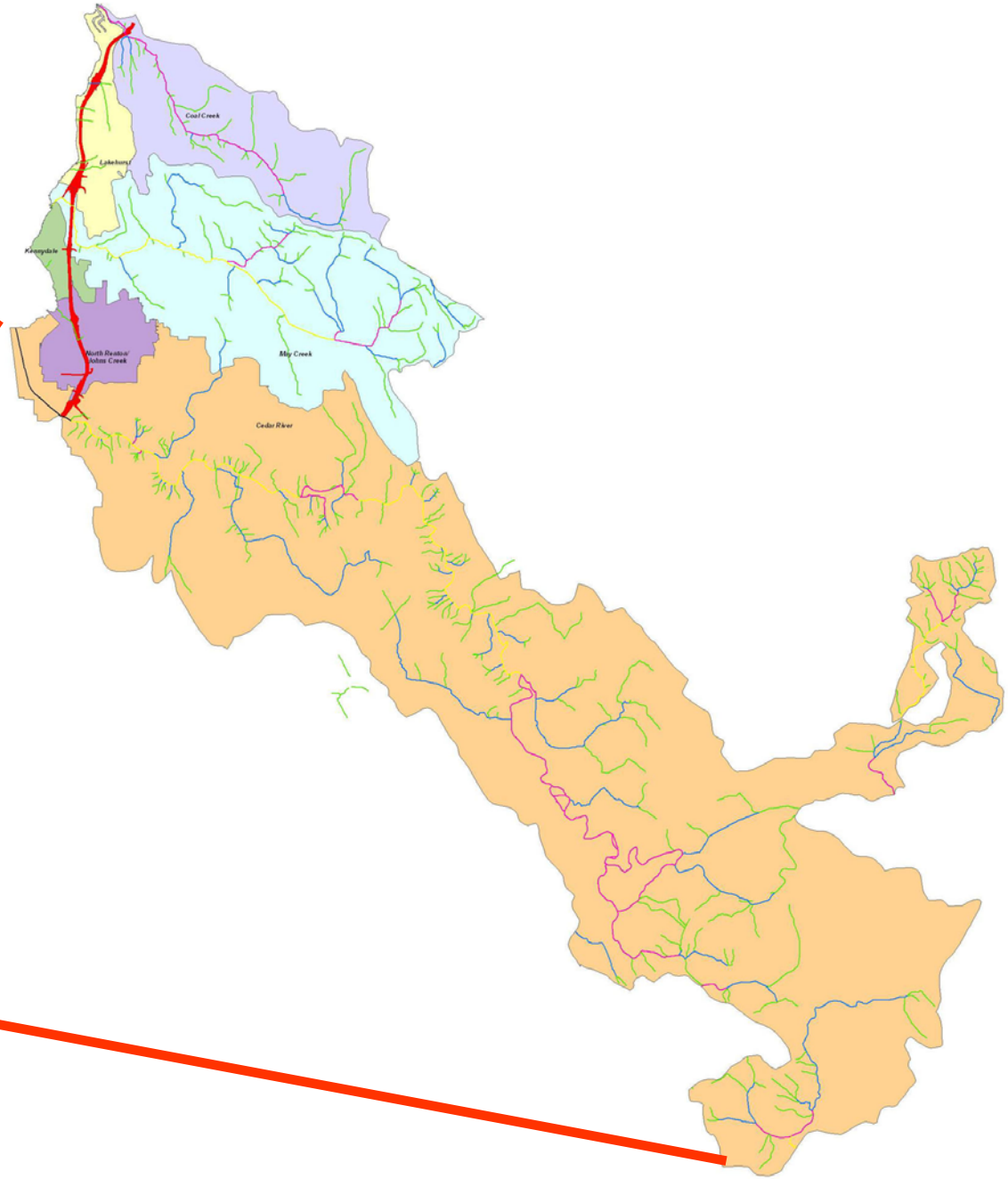
Stormwater Flow Control Focus

- We requested and received support from Ecology and WSDOT to explore concept
- Ecology Stormwater Engineer, Foroozan Labib, worked on the technical team to help identify wetland restoration criteria
- Restoration model was successfully tested for sensitivity to quantify wetland flow control

Stormwater Flow Control Focus

- Ecology and WSDOT working through policy implications and technical safeguards
- Once policy/technical issues are resolved, upgrade Ecology and WSDOT stormwater models to quantify flow control potential of wetland restoration sites

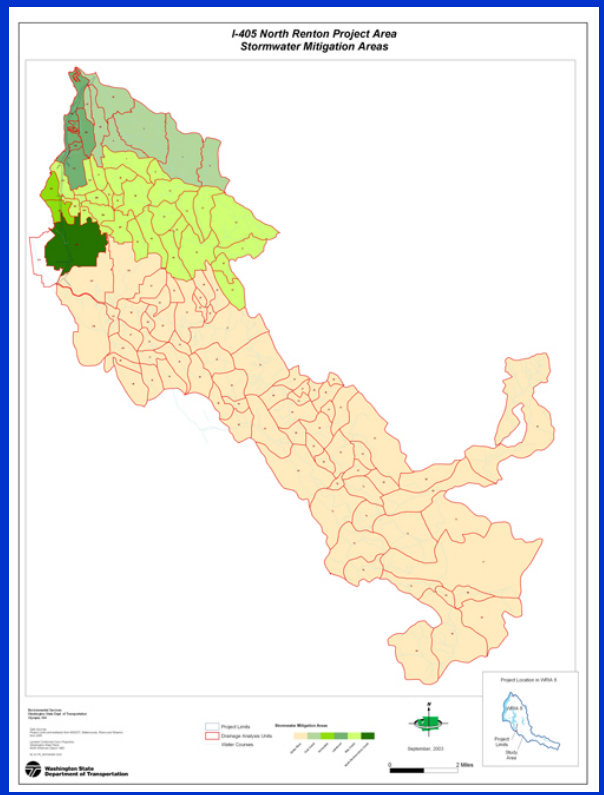
I-405 North Renton Study Area

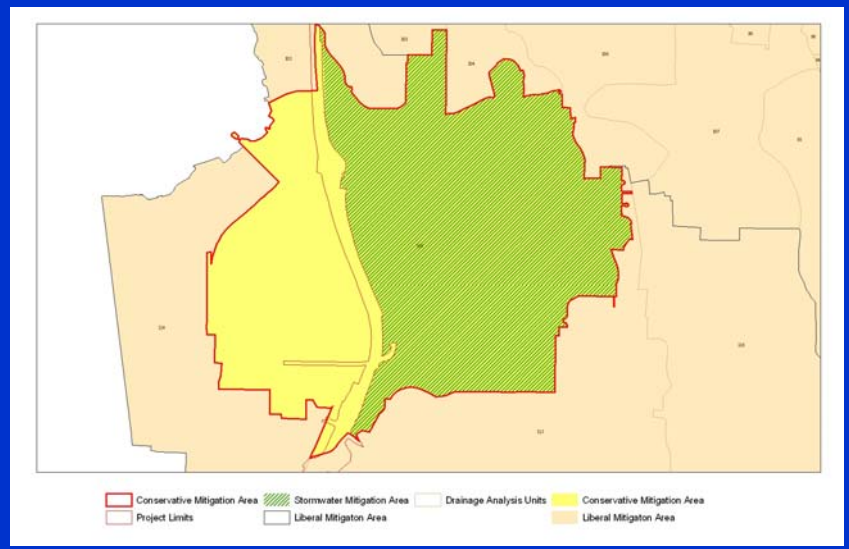


I-405 Project Priorities

- Deliver prioritized list of potential mitigation options
- Refine/Add to watershed methods
- Explore feasibility of treating stormwater flow control by restoring wetlands
- Dispel any inference of a “Black Box”

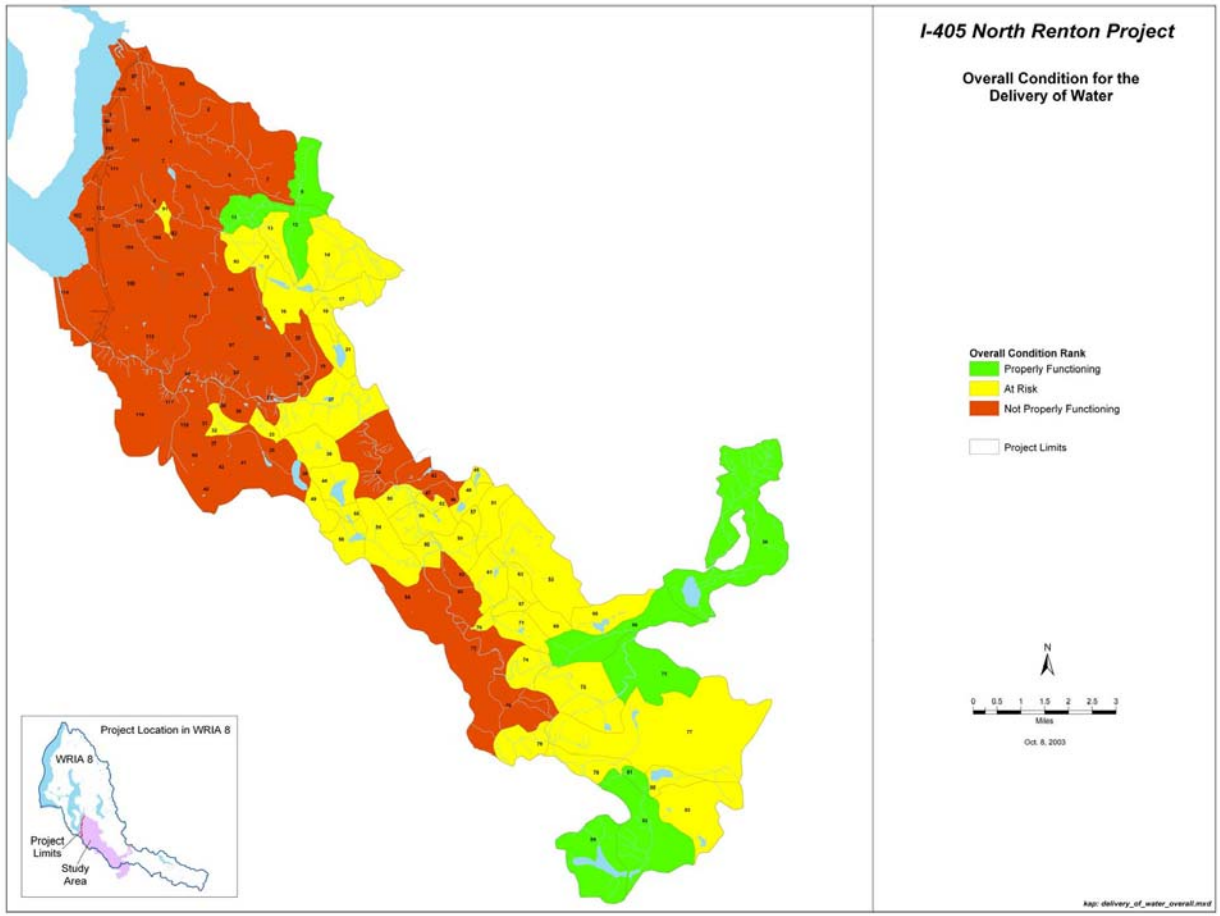
Establish Spatial Scales for Analysis and Mitigation





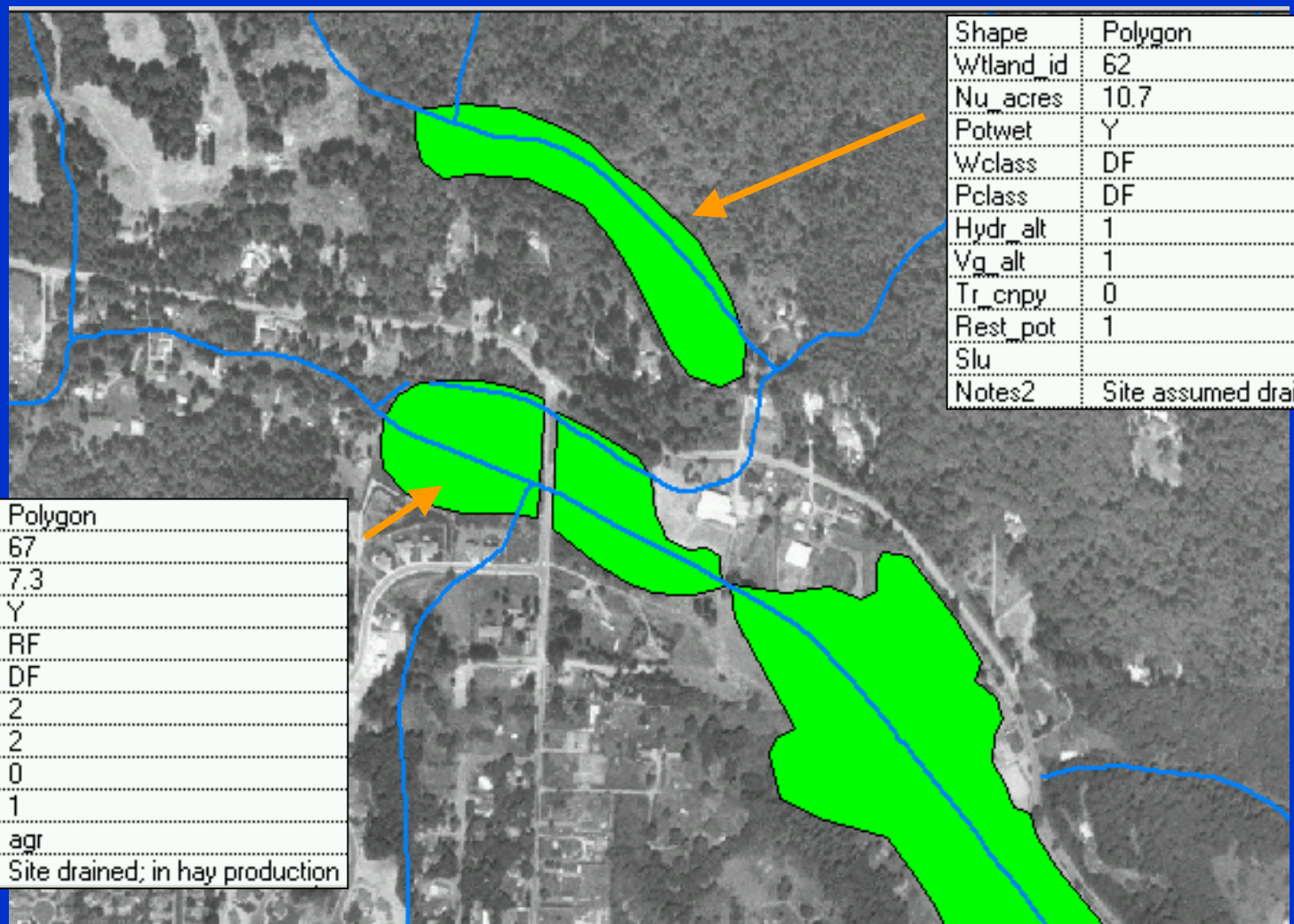
Interstate 405, North Renton

Characterize Condition of Study Area



- *Water*
- *Sediment*
- *Pollutants*
- *Wood*
- *Heat*
- *Aquatic Integrity*
- *Upland Integrity*

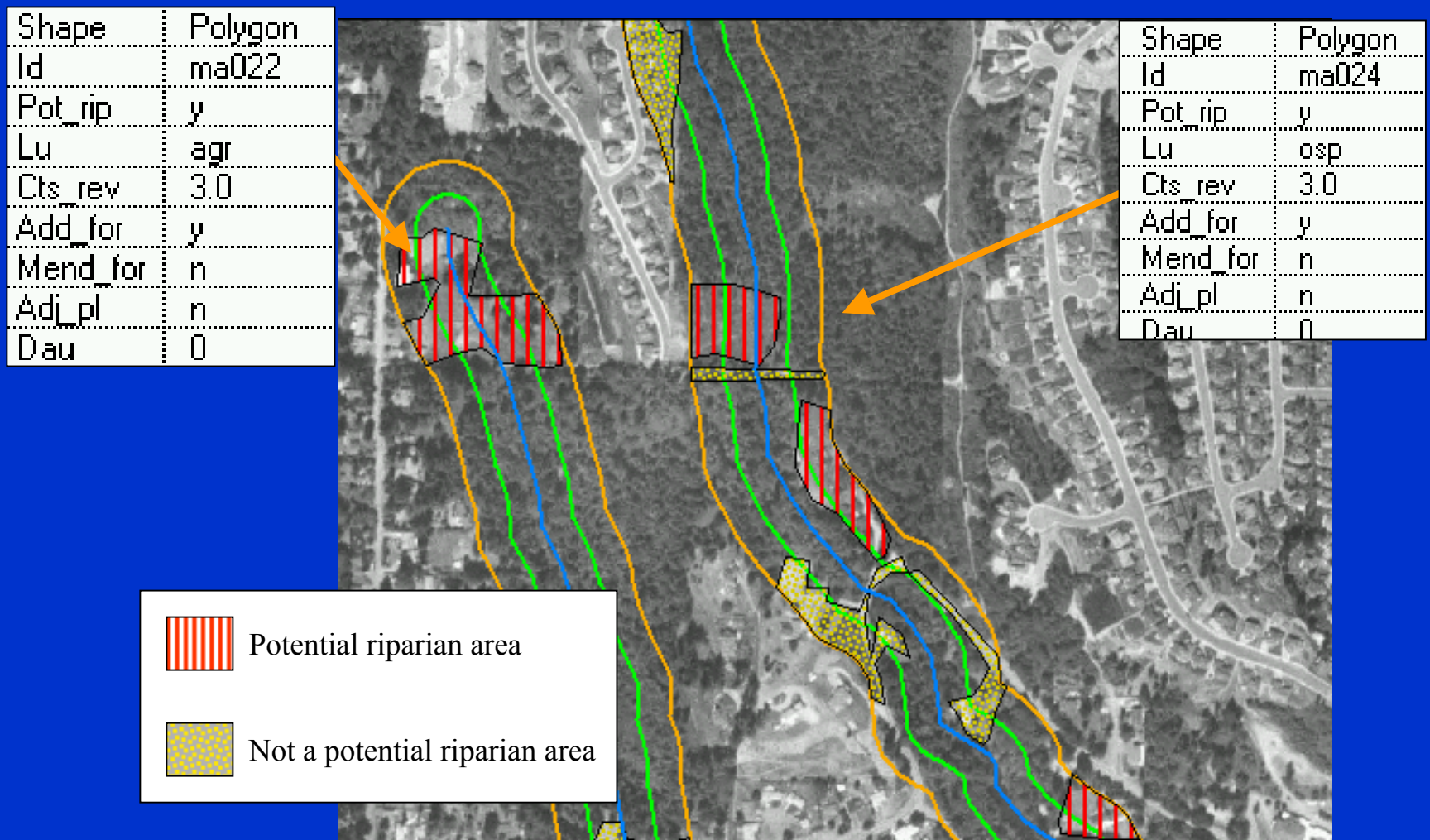
Develop Potential Wetland Restoration Site Database



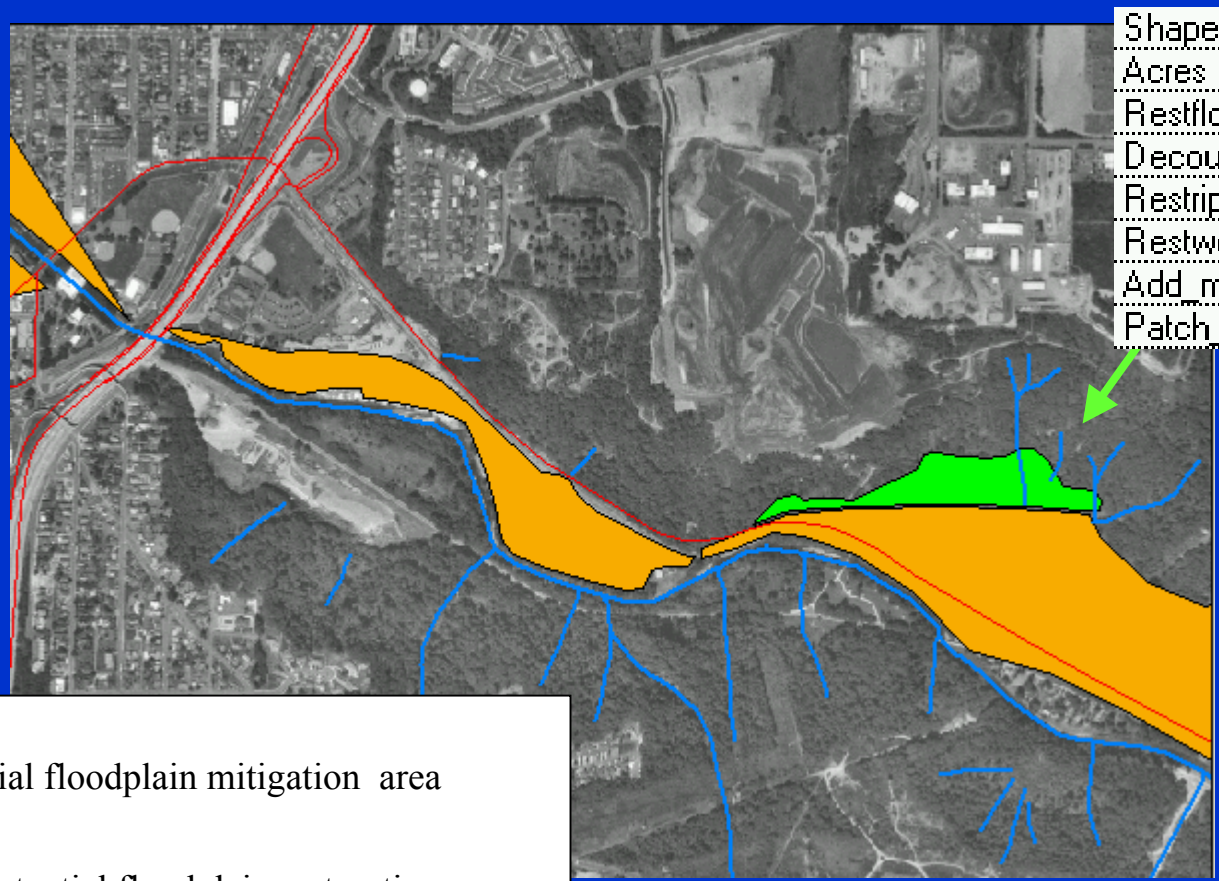
Shape	Polygon
Wtland_id	62
Nu_acres	10.7
Potwet	Y
Wclass	DF
Pclass	DF
Hydr_alt	1
Vg_alt	1
Tr_cnpy	0
Rest_pot	1
Slu	
Notes2	Site assumed drained; was

Shape	Polygon
Wtland_id	67
Nu_acres	7.3
Potwet	Y
Wclass	RF
Pclass	DF
Hydr_alt	2
Vg_alt	2
Tr_cnpy	0
Rest_pot	1
Slu	agr
Notes2	Site drained; in hay production

Develop Potential Riparian Restoration Site Database



Develop Potential Floodplain Restoration Site Database

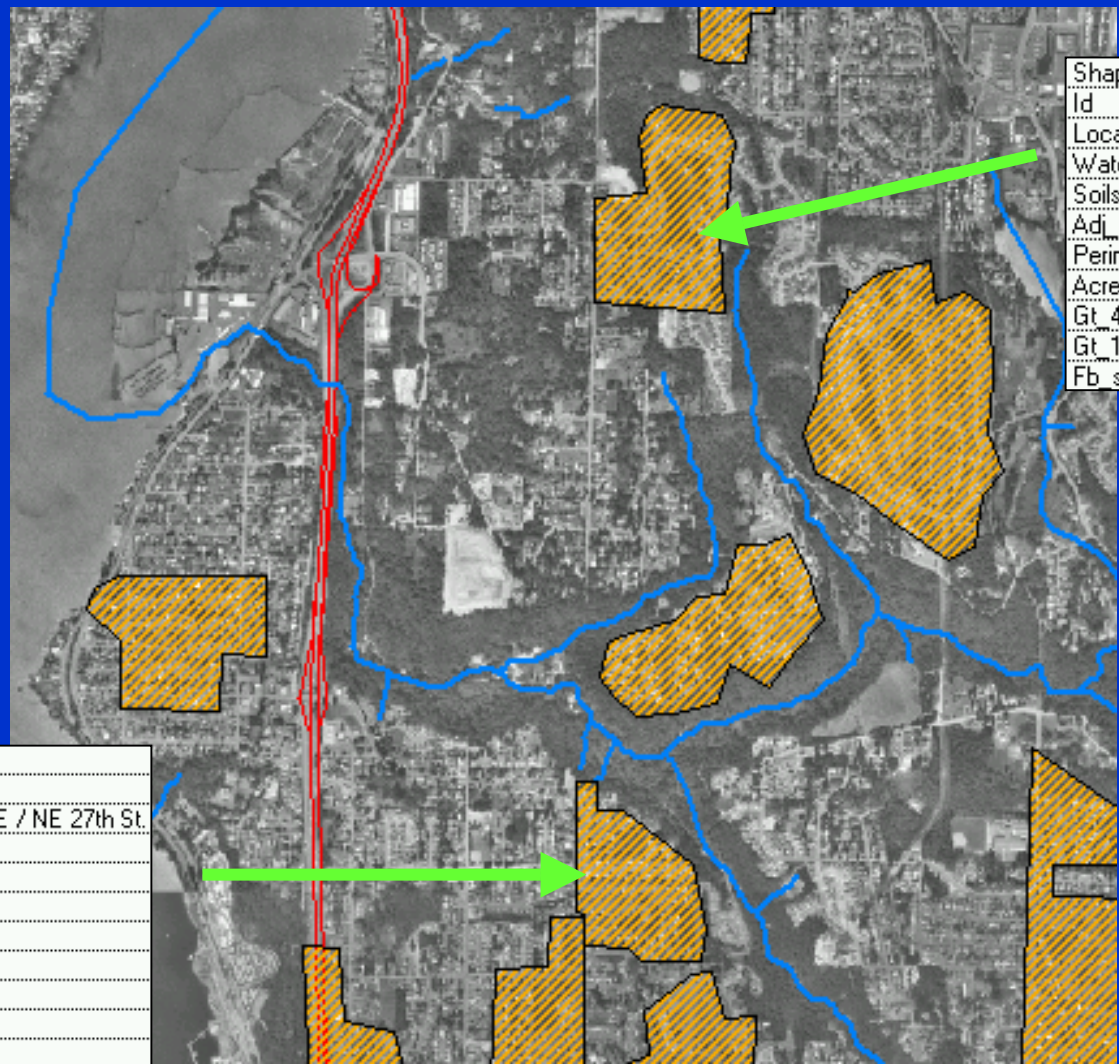


Shape	Polygon
Acres	11.787
Restflood	y
Decoupled	3
Restrip	1
Restwet	1
Add_mend	1
Patch_rnk	1

Potential floodplain mitigation area

Not a potential floodplain restoration area

Develop Potential Stormwater Retrofit Site Database



Shape	Polygon
Id	17
Location	SE 77th Pl. / 116 Ave. SE
Watershed	Lakehurst
Soils	A/B
Adj_park	0
Perimeter	7482.342
Acres	66.706
Gt_40	1
Gt_100	0
Fb_stream	0

Shape	Polygon
Id	13
Location	Edmonds Ave NE / NE 27th St.
Watershed	North Renton
Soils	A/B
Adj_park	1
Perimeter	6350.600
Acres	48.194
Gt_40	1
Gt_100	0
Fb_stream	0

Potential Mitigation Needs Lakehurst/Lake Washington

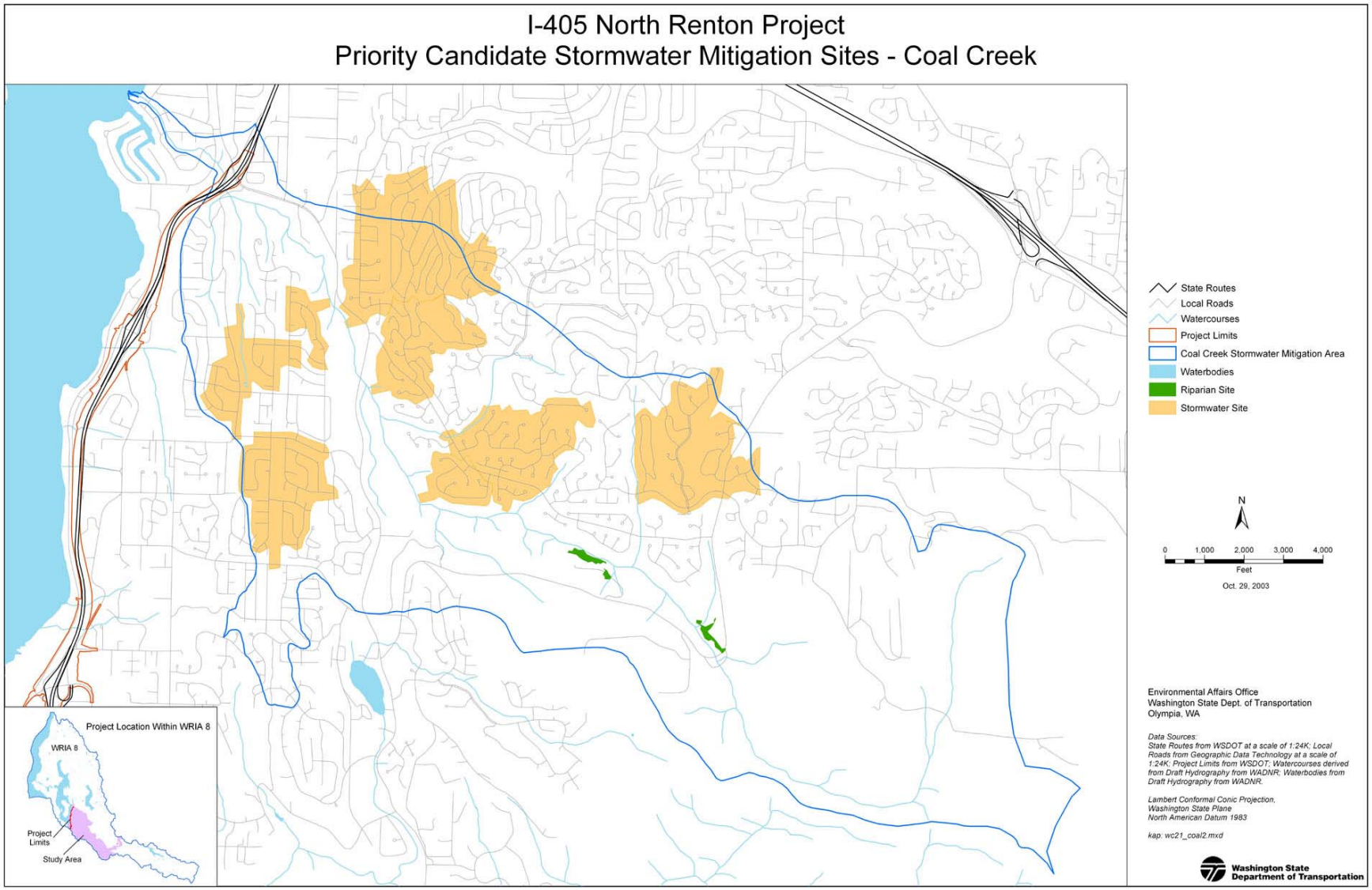
- Stormwater: TIA – 45 acres; 23 acre-feet of storage required
- Wetland: Maximum impacts - 5.8 acres; estimate of need with ratios - 11-17.5 acres
- Riparian: Maximum impacts - 2.1 acres; estimate of need - 1 acre

Develop Two Priority Site Lists

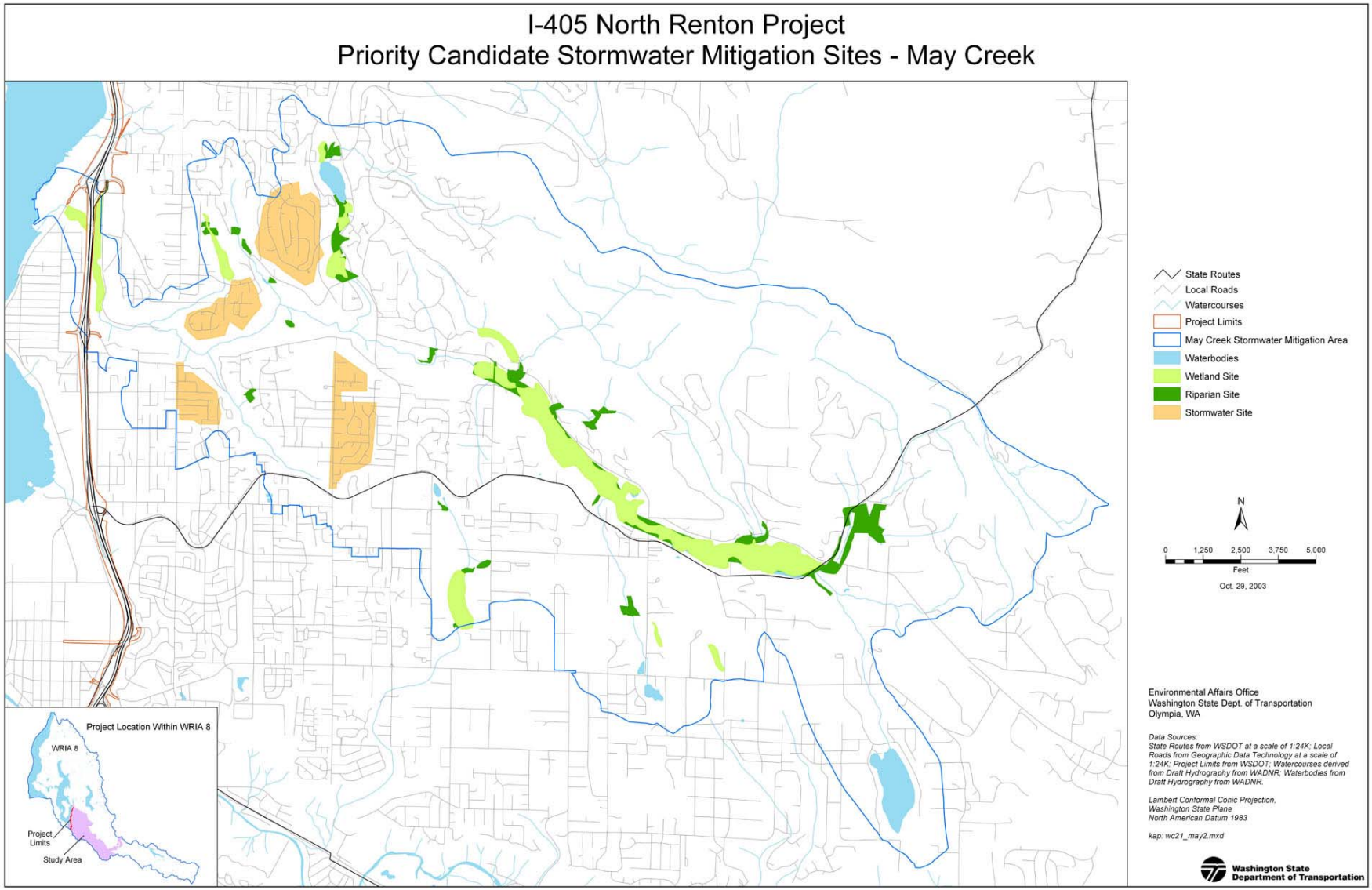
Key Attributes for Prioritizing Sites

- Environmental benefit
- Proximity upslope of project
- Ecological processes “At Risk”
- Natural resource type (floodplain, wetland)
- Local priority recovery sites
- Sites adjacent to public lands
- Project size

Coal Creek Site Locations



May Creek Site Locations



How are local jurisdictions and other stakeholder groups receiving the Watershed Characterization approach?

How is WSDOT using watershed characterization products and is this information of value?

David Masters

Water Resource Lead

I-405 Environmental Team

Key Messages

- Substantial progress made on methods
- Areas identified for improvement
- Project environmental team using results
- Preliminary restoration modeling completed to quantify wetland flow control potential
- Products are being used and valued

Next Steps

- Work with Ecology on stormwater concepts
- Incorporate wetland restoration model
- Update methods document
- Develop and test project screening tool
- Additional peer review
- Implement methods on new urban project
- Support pilot to institutionalize watershed characterization into state regulatory permitting and project management.

Watershed Characterization
Different Perspectives – Similar Results

I-405 N. Renton

Large urban projects:

- Complex issues
- Large environmental impacts and mit. cost
- Limited potential for on-site mitigation
- Sensitive natural resources

Walla Walla

Average project size:

- Comprehensive watershed planning complete
- On-site mitigation cost effective but resource benefits increase off-site